

responsiveness to insulin is shown to differ in lean and fat animals. Whereas the daily interval of lipogenic responsiveness remains near light onset, the phase of the insulin rhythm varies markedly. The peak concentration of insulin, e.g., occurs near light onset in obese female hamsters held on short day-lengths. That is, the daily peaks of the lipogenic stimulus (i.e., insulin) and the lipogenic response to insulin coincide in fat animals and not in lean animals.

The phase relations of both prolactin and insulin rhythms as well as the rhythms of tissue responses to the hormones are important elements in the regulation of lipogenesis. All of these rhythms, then, would be phase adjusted to regulate lipogenesis. Phase adjustment of these and perhaps other rhythms may also account for insulin resistance.

It is apparent that various modifications and changes can be made without departing the spirit and scope of this invention.

Having described the invention, what is claimed is:

1. A process for the therapeutic modification and regulation of glucose metabolism in an animal or human subject, which comprises administering to a subject in need of treatment, on a timed daily basis a dopamine agonist in dosage amount and for a period sufficient to reduce plasma glucose levels in said animal or human subject.

2. The process of claim 1 wherein the administration of said dopamine agonist is confined to the period during the day proximate to the time of day at which the serum prolactin concentration of young, lean, insulin-sensitive animal of the same sex and species is low.

3. The process of claim 1 wherein said subject is a human and the dopamine agonist is given daily confined to a time or times ranging from about 4 hours to about 8 hours after the time corresponding to that in which the prolactin concentration peaks in a lean insulin sensitive person.

4. The process of claim 1 wherein said subject is a human and the dopamine agonist is given daily confined to a time or times ranging from about 0 hours to about 5 hours after awakening.

5. The process of claim 1 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

6. The process of claim 2 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

7. The process of claim 3 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

8. The process of claim 4 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

9. In a method for treating an animal or human subject exhibiting one or more of obesity, type-II diabetes, insulin resistance, hyperinsulinemia, glucose intolerance, or hyperglycemia by delivery to said subject of a dopamine agonist, the improvement which comprises:

administering to said subject in need of such treatment, on a timed daily basis, a dopamine agonist in dosage amount and for a period sufficient to achieve in said subject at least one of the following modifications:

reduction in body fat stores, decrease in insulin resistance, reduction of hyperinsulinemia, increase in glucose tolerance, reduction of triglyceride levels, and reduction of hyperglycemia.

10. The process of claim 9 wherein the administration of said dopamine agonist is confined to the period during the day proximate to the time of day at which the serum prolactin concentration of a young, lean, insulin-sensitive subject of the same sex and species is low.

11. A method for treating an animal or human subject exhibiting one or more of obesity, type-II diabetes, insulin resistance, hyperinsulinemia, glucose intolerance, or hyperglycemia, comprising:

administering to said subject in need of such treatment, on a timed daily basis, a dopamine agonist in dosage amount and for a period sufficient to achieve in said subject at least one of the following modifications: reduction in body fat stores, decrease in insulin resistance, reduction of hyperinsulinemia, increase in glucose tolerance, reduction of triglyceride levels, and reduction of hyperglycemia.

12. The process of claim 11 wherein the administration of said dopamine agonist is confined to the period during the day proximate to the time of day at which the serum prolactin concentration of a young, lean, insulin-sensitive subject of the same sex and species is low.

13. The process of claim 11 wherein said subject is a human and the dopamine agonist is given daily confined to a time or times ranging from about 4 hours to about 8 hours after the time corresponding to that in which the prolactin concentration peaks in a lean insulin sensitive person.

14. The process of claim 11 wherein said subject is a human and the dopamine agonist is given daily confined to a time or times ranging from about 0 hours to about 5 hours after awakening.

15. The process of claim 11 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

16. The process of claim 12 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

17. The process of claim 13 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

18. The process of claim 14 wherein said subject is human, said dopamine agonist is bromocriptine, and the timed daily dosages of bromocriptine are given daily, once a day at levels ranging from about 3 micrograms to about 100 micrograms, per pound of body weight.

19. The process of claim 11 wherein said subject exhibits type-II diabetes and said dopamine agonist is administered to said in a dosage amount and for a period sufficient to achieve in said subject at least one of the following modifications: decrease in insulin resistance, reduction of hyperinsulinemia, increase in glucose tolerance, reduction of triglyceride levels, and reduction of hyperglycemia.

20. The process of claim 12 wherein said subject exhibits type-II diabetes and said dopamine agonist is administered to said in a dosage amount and for a period sufficient to achieve in said subject at least one of the following modifications: decrease in insulin resistance, reduction of